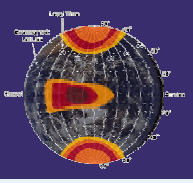

Mapping Total Electron Content

JULY 2000

Total Electron Content (TEC), the number of electrons per square centimeter, provides a measure of the ionospheric disturbance that affects radio signals, including those used for navigation. TEC mapping is a collateral benefit of the National CORS (Continuously Operating Reference System) network of Global Positioning System (GPS) receivers. NGS' original interest in studying GPS signal travel patterns was to learn the atmosphere's effect on GPS signals, and how that effect may lead to errors in positioning. By evaluating positioning errors inherent in GPS signals, NGS has developed a technique to map daily changes in the ionosphere.

GPS data from National CORS network stations is used to compute daily TEC maps for the area above each station. TEC contour maps are available 3 days after the data are collected, from October 19, 1997, to the present. It is shown as an animated map image on the Web at www.grdl.noaa.gov/GRD/GPS/Projects/TEC/Daily/

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
National Geodetic Survey

The National Geodetic Survey (NGS) defines and manages the National Spatial Reference System, which determines position, height, distance, direction, gravity, and shoreline throughout the United States. Since 1807 NGS and its predecessor agencies have led the world in precise positioning and developed emerging technologies for the public. NGS provides its expertise and a wealth of free information, including direct access to its data base, on the World Wide Web at: **www.ngs.noaa.gov**

Positioning America for the Future

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